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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/752,683	01/03/2001	Yoichi Yamamoto	2589-9	9757

23117 7590 01/25/2005

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EXAMINER	
SHAPIRO, LEONID	
ART UNIT	**PAPER NUMBER**
2673	

DATE MAILED: 01/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/752,683	YAMAMOTO ET AL.	
	Examiner	Art Unit	
	Leonid Shapiro	2673	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4-16* is/are rejected.

7)☒ Claim(s) *3,17 and 18* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-2, 4-8, 13, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. (US Patent No. 6,388,716 B1) in view of Suzuki (JP No. 10-28010A), Bigio et al. (US Patent No. 6,157,143) and Feasey (US Patent No. 5,574,664).

As to claim 1, Tsuzuki et al. teaches an image display device, comprising: a liquid crystal panel for displaying an RGB image including RGB colors (See Figs. 3, 13-14, items 11R, 11G, 11B, 96-97, See from Col. 17, Line 65 to Col. 18, Line 3); at least one optical sensor over at least R, G and B dots (See Fig. 3, items 11R, 11G, 11B, Col. 18, Lines 29-35) for measuring how the liquid crystal panel is emitting R (red), G (green) and B (blue) light (See Fig 13-14, items 96, 97, in description See Col.17, Lines 65-67 and Col. 18, Lines 1-35), wherein R, G and B light emitted by the liquid crystal panel are measured independently from one another by the at least one optical sensor (See Fig. 3, items 11R, 11G, 11B, in description See Col. 18, Lines 29-35).

Tsuzuki et al. does not show a light source for emitting light toward the liquid crystal panel that the liquid crystal panel receives and uses for display operation and wherein light emission the light source is controlled according to a measurement value obtained from optical sensor in order to correct brightness or chromaticity of both of the liquid crystal panel.

Suzuki teaches a light source for emitting light toward the liquid crystal panel that the liquid crystal panel receives (See Drawings 1-2, item 5, in Detailed Description See Page 2, paragraphs 0010) and uses for display operation lighting of the light source is controlled according to a measurement value obtained from optical sensor in order to correct brightness (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

It would have been obvious to one of ordinary skill in the art in the time of the invention to use a light source controlled according to a measurement value obtained from optical sensor to correct brightness as shown by Suzuki in the Tsuzuki et al. apparatus which measures R, G and B independently from one another in order to correct brightness and chromaticity.

Tsuzuki et al. and Suzuki do not show a temperature sensor and lamp temperature circuit for determining a temperature of the light source, light emission of the light source is also based upon temperature of the light source as determined by a temperature sensor and the lamp temperature circuit.

Bigio et al. teaches a temperature sensor and lamp temperature circuit for determining a temperature of the light source (See Fig. 2, items 21,22, in description See Col.3, Lines 24-28).

It would have been obvious to one of ordinary skill in the art in the time of the invention to use a temperature sensor and lamp temperature circuit for determining a temperature of the light source as shown by Bigio et al. in Suzuki and the Tsuzuki et al. apparatus to add the temperature of the light source as parameter to control light emission of the light source in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

Tsuzuki et al., Suzuki, Bigio et al. do not show at least one optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter.

Feasey teaches at least one optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter (See Fig. 1, items 14,20, from Col. 3, Line 65 to Col. 4, Line 37 and Col. 5, Lines 7-16).

It would have been obvious to one of ordinary skill in the art in the time of the invention to incorporate Feasey teaching into Bigio et al., Suzuki and the Tsuzuki et al. system to reproduce a color image (See Col. 1, Lines 50-55 in the Feasey reference).

As to claim 4, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

As to claim 5, Suzuki teaches the brightness and/or chromaticity of liquid crystal panel is corrected by controlling a driving voltage of the light source (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

As to claim 2, Tsuzuki et al. teaches the optical sensor has a light sensor area at least equal to areas of one R, one G, and one B dots added together (See Fig. 14, item 97, in description See col. 18, Lines 15-20).

Tsuzuki et al. does not teach a viewing angle of the optical sensor is limited in all directions and a measurement area of the optical sensor depends on the viewing angle.

As notoriously well known in the art that a measurement area of a sensor depends on its viewing angle.

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a sensor with a limited viewing angle in the Tsuzuki et al. apparatus in order to improve the image quality of the image.

As to claims 6-7, Tsuzuki et al. teaches that the light source is part of a backlight provided on the back of the liquid crystal panel and the RGB image is displayed by receiving image data transmitted from a transmitting side (See Fig. 13-14, items a1, 96, in description See Col. 18, Lines 7-8).

As to claim 8, Tsuzuki et al. and Suzuki do not show a temperature sensor for measuring surface temperature of the light source, wherein the driving voltage or driving current of the light source is controlled in such way that the surface temperature of the light source is kept constant and the temperature sensor is a thermistor.

Bigio et al. teaches a temperature sensor and lamp temperature circuit for determining a temperature of the light source See Fig. 2, items 21,22, in description See Col.3, Lines 24-28).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Bigio et al. approach in Suzuki and the Tsuzuki et al. apparatus to add the temperature of the light source as parameter to control light emission of the light source in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

As to claim 13, Tsuzuki et al. teaches optical sensors on a face of the LCD panel (See Fig. 14, items 96-96, in description See Col. 18, Lines 13-14).

As to claim 16, Bigio et al. teaches duty factor setter for setting a duty factor of a pulse signal in such way that, when the difference between a current and specified brightness values is negative, lamp current supplied to the light source is increased to eliminate the difference and, when the difference is positive, the lamp current is decreased to eliminate the difference when the current control 9see Fig. 1, items 12,14,16, in description See Col. 2, Lines 61-66).

2. Claims 12, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. in view of Suzuki and Feasey.

As to claim 12, Tsuzuki et al. teaches an image processing device including a display panel to produce an image (See Fig. 13-14, items 95-97, Col. 2, Lines 14-24), comprising: at least one optical sensor over at least R, G and B dots (See Fig. 3, items 11R, 11G, 11B, Col. 18, Lines 29-35) is emitted from display panel (See Fig.14, item 97, in description See Col. 18, lines 2-3) are measured by the at least one sensor independently from one another (See Fig. 3, items 11R, 11G, 11B, in description See Col. 18, Lines 29-35).

Tsuzuki et al does not show a light source that emits light that is received and used by the display panel, wherein brightness or chromaticity or both of the image output from the display panel is corrected by controlling light emission of the light source according to a measurement value obtained from the at least one sensor.

Suzuki teaches a light source for emitting light toward the liquid crystal panel that the liquid crystal panel receives (See Drawings 1-2, item 5, in Detailed Description See Page 2, paragraphs 0010) wherein brightness of the image output from the display panel is corrected by controlling light emission of the light source according to a measurement value obtained from

the sensor (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

It would have been obvious to one of ordinary skill in the art in the time of the invention to use a light source controlled according to a measurement value obtained from optical sensor to correct brightness as shown by Suzuki in the Tsuzuki et al. apparatus which measures R, G and B independently from one another in order to correct brightness and chromaticity or both.

Tsuzuki et al., Suzuki do not show at least one optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter.

Feasey teaches at least one optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter (See Fig. 1, items 14,20, from Col. 3, Line 65 to Col. 4, Line 37 and Col. 5, Lines 7-16).

It would have been obvious to one of ordinary skill in the art in the time of the invention to incorporate Feasey teaching into Bigio et al., Suzuki and the Tsuzuki et al. system to reproduce a color image (See Col. 1, Lines 50-55 in the Feasey reference).

As to claim 15 Tsuzuki et al. teaches optical sensors on a face of the LCD panel (See Fig. 14, items 96-96, in description See Col. 18, Lines 13-14).

3. Claim 9 rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al., Suzuki, Bigio et al. and Feasey as aforementioned in claim 8 in view Yamomoto et al. (US Patent No. 6,348,910 B1).

Tsuzuki et al., Suzuki, Bigio et al. and Feasey do not show the temperature sensor as thermistor.

Yamomoto et al. teaches the temperature sensor is a thermistor (See Fig. 52, step S293, in description See Col.47, Lines 48-52).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a temperature sensor as a thermistor as shown by Yamomoto et al. in the Tsuzuki et al., Suzuki, Bigio et al. and Feasey apparatus in order to more reduce power consumption.

4. Claims 10, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al. in view of Suzuki, Terasaki (US Patent No. 5,844,540) and Feasey.

As to claim 10 Tsuzuki et al. teach an image display device with a liquid crystal panel for displaying an image (See Figs. 13-14, items 96-97, See from Col. 17, Line 65 to Col. 18, Line 3), at least first, second and third separate and distinct optical sensors for measuring how the liquid crystal panel is emitting R (red), G (green), and B (blue) light, respectively, so that R, G and B light output from the liquid crystal panel measured independently (See Fig. 3, items 11R, 11G, 11B, in description See Col. 18, Lines 29-35); a signal reading circuit for converting a measurement value obtained from the optical sensor into a current brightness value of the liquid crystal panel (See Fig. 13, items 12,13,15, 20, Col. 18, Lines 24-35); a brightness setting circuit for permitting entry of specified brightness of the liquid crystal panel (See Fig. 13, items 15-16, 20, 95-96, Col. 18, Lines 24-35); converting circuit for converting an output of the brightness setting circuit into a specified brightness value of the liquid crystal panel (See Fig. 13,

items 15-16, 95, Col. 18, Lines 24-35); a calculator for calculating a difference between the current brightness value and the specified brightness value of the liquid crystal panel (See Fig. 13, item 20, See Col. 18, Lines 24-35).

Tsuzuki et al. does not show a backlight for illuminating the liquid crystal panel from behind, wherein the brightness of the liquid crystal panel is corrected by controlling light emission of the backlight according to the measurement value obtained from the optical sensors.

Suzuki teaches a light source for emitting light toward the liquid crystal panel that the liquid crystal panel receives (See Drawings 1-2, item 5, in Detailed Description See Page 2, paragraphs 0010) and lighting of the light source is controlled according to a measurement value obtained from optical sensor in order to correct brightness (See Drawings 1-2, items 1-7,S101-S106, in Detailed Description See Page 1-2, paragraphs 0005-0014).

It would have been obvious to one of ordinary skill in the art in the time of the invention to use a light source controlled according to a measurement value obtained from optical sensor to correct brightness as shown by Suzuki in the Tsuzuki et al. apparatus in order to correct brightness.

Tsuzuki et al. and Suzuki do not teach a duty factor setting circuit for outputting a pulse signal whose duty factor depends on an output of the calculator (controller or computer) and inverter for producing a driving voltage and a driving current for the backlight according to the pulse signal.

Terasaki teaches a liquid crystal display with backlight control function is provided with PWM dimmer driving circuit including duty factor setting (See Fig. 9 and 10, in description See

Col. 11, Lines 49-60) and inverter (See Fig. 22d and 22e, items 52, 58, 59, in description See Col. 2, Lines 43-58).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement a duty factor and inverter circuits as shown by Terasaki in the Tsuzuki et al. and Suzuki apparatus in order to more reduce power consumption.

Tsuzuki et al., Suzuki, Terasaki do not show optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter.

Feasey teaches at least one optical sensor having a light receiving area corresponding to at least one pixel including R (red), G (green), and B (blue) dots, the optical sensor being arranged immediately above at least one color filter (See Fig. 1, items 14,20, from Col. 3, Line 65 to Col. 4, Line 37 and Col. 5, Lines 7-16).

It would have been obvious to one of ordinary skill in the art in the time of the invention to incorporate Feasey teaching into Bigio et al., Suzuki and the Tsuzuki et al. system to reproduce a color image (See Col. 1, Lines 50-55 in the Feasey reference).

As to claim 14, Tsuzuki et al. teaches optical sensor is on a face of the LCD panel (See Fig. 14, items 96-96, in description See Col. 18, Lines 13-14).

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuzuki et al., Suzuki and Terasaki, Feasey in view of Bigio et al.

Tsuzuki et al. teaches a signal reading circuit for converting a measurement value obtained from the optical sensor into a current brightness and a current chromaticity value of the

liquid crystal panel (See Fig. 13, items 20, 97, 96, 20, 22, 23, 24, 15, 16, 95, in description See Col. 18, Lines 24-35).

Tsuzuki et al., Suzuki and Terasaki, Feasey do not show a thermistor whose resistance varies with surface temperature of the backlight and temperature reading circuit for converting the resistance of the thermistor into a surface temperature value of backlight, converting means for converting an output of the temperature reading circuit into a specified brightness value of the liquid crystal panel, wherein brightness and chromaticity of the liquid crystal panel are corrected by controlling light emission of the backlight according to the measurement values obtained from the optical sensors in such a way that surface temperature of the backlight is kept constant.

Bigio et al. teaches a temperature and optical sensors, and lamp temperature circuit for determining a temperature of the light source See Figs. 1-2, items 12,21,22, in description See Col.3, Lines 24-28).

It would have been obvious to one of ordinary skill in the art in the time of the invention to implement Bigio et al. approach in Tsuzuki et al., Suzuki and Terasaki, Feasey apparatus to brightness and chromaticity of the liquid crystal panel are corrected by controlling light emission of the backlight according to the measurement values obtained from the optical sensors in such a way that surface temperature of the backlight is kept constant in order to maintain the desired flat panel display luminance (See Col. 2, Line 22 in the Bigio reference).

Response to Amendment

6. Applicant's arguments, regarding claims 1-2, 4-16, filed on 01.03.05 have been considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

7. Claims 3, 17-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Relative to claim 3, the major difference between the teaching of the prior art of record (Tsuzuki, Suzuki, Bigio et al and Aoki) and the instant invention is that the said prior art **does not teach** the measurement area of the optical sensor is within 10 degrees upward, downward, leftward, and rightward of a line perpendicular to the liquid crystal.

Relative to claims 17-18, the major difference between the teaching of the prior art of record (Tsuzuki, Suzuki,Terasaki, Bigio et al and Aoki) and the instant invention is that the said prior art **does not teach** the optical sensor is located immediately above at least one color filter and thus over at least the R, G and B dots, so that all light emitted from R, G and B dots of the pixel is first collectively captured by the sensor and then from different wavelength components thereof of R, G and B components are separately detected and measured independently.

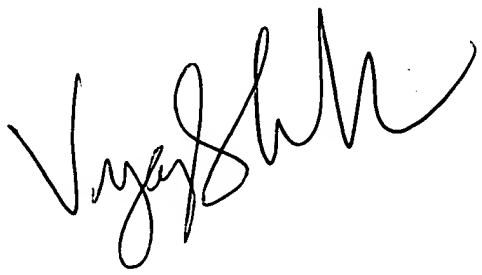
Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ls 01.21.05



VIJAY SHANKAR
PRIMARY EXAMINER